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10/674,220	09/29/2003	Jessy Rouyer	139165USNP	2505

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EXAMINER	
CHRISS, ANDREW W	

ART UNIT	PAPER NUMBER
2472	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/674,220	ROUYER ET AL.	
	Examiner	Art Unit	
	ANDREW CHRISS	2472	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 May 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 3, 2011 has been entered.

Response to Amendment

2. Applicant's amendment, filed May 3, 2011, has been entered and carefully considered. Claim 1 is amended, Claim 21 is canceled, and Claims 1-20 are currently pending.

3. In light of Applicant's amendment to Claim 1, the outstanding rejection of Claims 1-20 under 35 U.S.C. 103(a) is withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. **Claims 1-3 and 6-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over DeBoer et al (United States Patent Application Publication US 2005/0122899 A1), hereinafter DeBoer, in view of Luft et al (United States Patent 7,680,031), hereinafter Luft.

Regarding Claim 1, DeBoer discloses a plurality of nodes; wherein each node in the plurality of nodes is coupled to communicate with at least one other node in the plurality of nodes (Figure 6, wherein a plurality of network elements are coupled to communicate with at least one other of the plurality of network elements);; and wherein each node of the plurality of nodes is operable to perform the steps of: receiving a packet, wherein the packet comprises a route indicator field further comprising at least one bit that indicates a link type (paragraphs 0053-0055, wherein the packet comprises path overhead to be used for protection switching, and further wherein the protection path is specified by bytes in the path overhead); responsive to the packet being received prior to a time of failure along a communication link between two of the plurality of nodes, transmitting the packet along a first route in the system to another node in the plurality of nodes (paragraph 0057; wherein a network element receives data and transmits via a working path; paragraph 0062, wherein data traffic is received during working conditions); and responsive to the packet being received after a time of failure along a communication link between two of the plurality of nodes and in response to a change of state of the at least one bit that indicates the link type in the route indicator field in response to a node detecting a link failure, transmitting the packet along a second route in the system to another node in the plurality

of nodes, wherein the second route differs from the first route and is identified prior to the time of failure (paragraphs 0064 and 0070-0072, wherein the path overhead bytes indicating the link type are modified in response to detecting a failure and a packet is routed over a protection path separate from the working path) and wherein the change of state of the at least one bit that indicates the link type in the route indicator field is performed by the same node that is responsible for detecting a link failure and for receiving and transmitting the packet (paragraphs 0064 and 0070-0072, wherein the network element that detects the failure also modifies the path overhead and transmits/receives the packet). However, DeBoer does not disclose the plurality of nodes comprising a bridge network between external nodes located externally from the plurality of nodes. In the same field of endeavor, Luft discloses an optical ring architecture, wherein the nodes comprising the ring serve as a bridge between externally located networks (Figure 2A; column 4, lines 30-39). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the bridging optical ring disclosed in Luft with the protection path scheme disclosed in DeBoer in order to provide spanning tree redundancy and load balancing in a spanning tree architecture (see column 1, lines 56-64 of Luft).

Regarding Claim 2, DeBoer discloses a packet comprising a first packet (Figure 5, which illustrates the packet format including path overhead), determining a third route in the system after the time of failure (paragraphs 0060 and 0077, wherein protection paths can be allocated according to a 1:n scheme); receiving a second packet after the first packet (paragraph 0064, wherein the path overhead bytes indicating the link type are modified in response to detecting a failure and a packet is routed over a protection path separate from the working path); and transmitting the second packet along the third route to another node in the plurality of nodes

(paragraph 0064, wherein the path overhead bytes indicating the link type are modified in response to detecting a failure and a packet is routed over a protection path separate from the working path).

Regarding Claim 3, DeBoer discloses after the step of receiving the second packet and prior to the step of transmitting the second packet, a step of changing a state of the route indicator field to cause transmission to the third route (paragraph 0064, wherein the path overhead bytes indicating the link type are modified in response to detecting a failure and a packet is routed over a protection path separate from the working path).

Regarding Claim 6, DeBoer discloses a node, adjacent to a failure in the first route, receiving the second packet (paragraph 0070-0071, wherein a network element receives a packet on a protection path after an adjacent link fails).

Regarding Claim 7, DeBoer discloses after the step of receiving the second packet and prior to the step of transmitting the second packet, a step of setting a value of a route indicator field in the second packet to cause transmission to either the first or second route (paragraph 0064, wherein the path overhead bytes indicating the link type are modified in response to detecting a failure and a packet is routed over a protection path separate from the working path).

Regarding Claim 8, DeBoer discloses identifying a transmit port in the node that corresponds to a receipt port in the node (paragraphs 0065 and 0070-0071, wherein ingress and egress ports at a network element are coupled in order to transmit the packet); and transmitting the packet via the transmit port to the second route wherein the packet is a data packet (paragraphs 0070-0071, wherein ingress and egress ports at a network element are coupled to

transmit the packet along a protection path; Figure 5, wherein the packet comprises overhead and payload).

Regarding Claim 9, DeBoer discloses the transmitting step is not responsive to a destination address within the packet (paragraph 0070, wherein the packet is switched according to protection information present in the path overhead).

Regarding Claim 10, DeBoer discloses multiple ones of the plurality of nodes are operable to receive and transmit the packet along the second route until the packet reaches an egress node in the plurality of nodes (paragraphs 0070-0072, wherein each network element sends the packet along a protection path in response to reading the protection information from the path overhead).

Regarding Claim 11, DeBoer discloses identifying a transmit port in the node that corresponds to a receipt port in the node (paragraphs 0065 and 0070-0071, wherein ingress and egress ports at a network element are coupled in order to transmit the packet); and transmitting the packet via the transmit port to the second route (paragraphs 0070-0071, wherein ingress and egress ports at a network element are coupled to transmit the packet along a protection path).

7. **Claims 4 and 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over DeBoer in view of Luft as applied to claim 3 above, and further in view of Sato et al (United States Patent Application Publication US 2002/0038379 A1), hereinafter Sato.

Regarding Claim 4, the combination of DeBoer and Luft discloses all of the limitations of Claim 3, as described above. Further, DeBoer discloses transmitting a packet along a first route (paragraph 0057; wherein a network element receives data and transmits via a working path; paragraph 0062, wherein data traffic is received during working conditions), identifying a

transmit port in the node (paragraphs 0065 and 0070-0071, wherein ingress and egress ports at a network element are coupled in order to transmit the packet) and transmitting the packet via the transmit port to the first route (paragraphs 0070-0071, wherein ingress and egress ports at a network element are coupled to transmit the packet along a protection path). However, the combination of DeBoer and Luft does not disclose the a destination address in the packet corresponding to a node external to the plurality of nodes. In the same field of endeavor, Sato discloses a packet processor routing a SONET frame through a switch based on the destination address of the IP packet within the SONET frame (paragraph 0004). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the routing disclosed in Sato with the protection path scheme disclosed in DeBoer, as modified above, in order to reduce the amount of time required to perform routing table lookup in a content addressable memory (CAM).

Regarding Claim 5, DeBoer discloses transmitting a packet along a third route (paragraphs 0060 and 0077, wherein protection paths can be allocated according to a 1:n scheme), identifying a transmit port in the node (paragraphs 0065 and 0070-0071, wherein ingress and egress ports at a network element are coupled in order to transmit the packet) and transmitting the packet via the transmit port to the first route (paragraphs 0070-0071, wherein ingress and egress ports at a network element are coupled to transmit the packet along a protection path). However, the combination of DeBoer and Luft does not disclose the a destination address in the packet corresponding to a node external to the plurality of nodes. In the same field of endeavor, Sato discloses a packet processor routing a SONET frame through a switch based on the destination address of the IP packet within the SONET frame (paragraph

0004). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the routing disclosed in Sato with the protection path scheme disclosed in DeBoer, as modified above, in order to reduce the amount of time required to perform routing table lookup in a content addressable memory (CAM).

8. **Claims 12-17 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over DeBoer in view of Luft as applied to claim 1 above, and further in view of Sultan et al (United States Patent Application Publication US 2003/0154315 A1), hereinafter Sultan.

Regarding Claim 12, the combination of DeBoer and Luft discloses all of the limitations of Claim 1, as described above. However, the aforementioned references do not disclose wherein a first node in the plurality of nodes that receives a packet from a first external node of the external nodes located externally from the plurality of nodes comprises an ingress node; wherein a second node in the plurality of nodes that is coupled to communicate the packet to a second external node of the external nodes located externally from the plurality of nodes comprises an egress node; and further comprising a step of, responsive to a node in the plurality of nodes receiving a packet as an ingress node, inserting an address of the ingress node and the egress node into the packet. In the same field of endeavor, Sultan discloses inserting an ingress and egress ID into a data packet and forwarding the packet within a resilient packet ring architecture (paragraph 0023; Figure 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the packet structure disclosed in Sultan with the path protection scheme disclosed in DeBoer, as modified above, in order to preserve spatial reuse in the ring by providing directed broadcast transmission (see paragraphs 0007-0008 of Sultan).

Regarding Claim 13, the combination of DeBoer, Luft, and Sultan discloses the step of transmitting the packet along either the first route or the second route comprises: identifying a transmit port in the node that corresponds to the address of the egress node in the packet; and transmitting the packet via the transmit port to either the first or second route (see paragraphs 0065 and 0070-0071 of DeBoer, wherein ingress and egress ports at a network element are coupled in order to transmit the packet; and paragraph 0023, wherein the egress node is identified as the destination of a packet). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the packet structure disclosed in Sultan with the path protection scheme disclosed in DeBoer, as modified above, in order to preserve spatial reuse in the ring by providing directed broadcast transmission (see paragraphs 0007-0008 of Sultan).

Regarding Claim 14, DeBoer discloses the step of transmitting the packet along either the first route or the second route is further responsive to the route indicator field in the packet to cause transmission to either the first route or the second route, respectively (paragraphs 0064 and 0070-0072, wherein the path overhead bytes indicating the link type are modified in response to detecting a failure and a packet is routed over a protection path separate from the working path).

Regarding Claim 15, DeBoer discloses the packet further comprises a field for indicating allowability of an ingress node or a node adjacent a failure to change a state in the route indicator field (paragraphs 0064 and 0070-0072, wherein the path overhead bytes indicating the link type are modified in response to detecting a failure).

Regarding Claim 16, DeBoer discloses the first route and the second route are routes in a plurality of different routes, wherein each route in the plurality of different routes is identified

prior to the time of failure (paragraphs 0064 and 0070-0072, wherein the path overhead bytes indicating the link type are modified in response to detecting a failure and a packet is routed over a protection path separate from the working path and identified prior to the failure).

Regarding Claim 17, DeBoer discloses each route in the plurality of different routes is identified by a corresponding and different value in the route indicator field (paragraphs 0064 and 0070-0072, wherein the path overhead bytes indicating the link type are modified in response to detecting a failure and a packet is routed over a protection path separate from the working path).

Regarding Claim 20, DeBoer discloses a packet comprising a first packet (Figure 5, which illustrates the packet format including path overhead), determining a third route in the system after the time of failure (paragraphs 0060 and 0077, wherein protection paths can be allocated according to a 1:n scheme); receiving a second packet after the first packet (paragraph 0064, wherein the path overhead bytes indicating the link type are modified in response to detecting a failure and a packet is routed over a protection path separate from the working path); and transmitting the second packet along the third route to another node in the plurality of nodes (paragraph 0064, wherein the path overhead bytes indicating the link type are modified in response to detecting a failure and a packet is routed over a protection path separate from the working path).

9. **Claims 18 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over DeBoer in view of Luft and Sultan as applied to claim 16 above, and further in view of Yip et al (United States Patent 6,914,905), hereinafter Yip.

Regarding Claim 18, the combination of DeBoer, Luft, and Sultan discloses all of the limitations of Claim 16, as described above. However, the aforementioned references do not disclose the packet comprising a VLAN identifier field operable to identify each different route in the plurality of routes so as to facilitate a broadcast message to all nodes on an identified route. In the same field of endeavor, Yip discloses performing routing between different networks based on a VLAN identifier carried in the data packet (Abstract; column 6, line 53 – column 7, line 33). It would have been obvious to one of ordinary skill in the art at the time of the invention the VLAN-based routing disclosed in Yip with the path protection scheme disclosed in DeBoer, as modified above, in order to conserve IP address space (see column 4, lines 32-42 of Yip).

Regarding Claim 19, the combination of DeBoer, Luft, and Sultan does not disclose the VLAN identifier field facilitating registration of selected different routes in the plurality of routes. In the same field of endeavor, Yip discloses performing routing between different networks based on a VLAN identifier carried in the data packet which is used to configure routing interfaces (Abstract; column 6, line 53 – column 7, line 33). It would have been obvious to one of ordinary skill in the art at the time of the invention the VLAN-based routing disclosed in Yip with the path protection scheme disclosed in DeBoer, as modified above, in order to conserve IP address space (see column 4, lines 32-42 of Yip).

Response to Arguments

10. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW CHRISS whose telephone number is (571)272-1774. The examiner can normally be reached on Monday - Friday, 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew Chriss/
Examiner, Art Unit 2472
6/29/2011